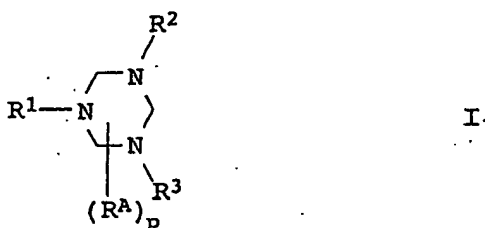


We claim:

1. A process for the oligomerization of olefins in which  
 5 an olefin is brought into contact with a catalyst  
 system which is obtainable from
  - a) at least one chromium source,
  - 10 b) at least one ligand of the formula I



- 15 where  $\text{R}^1$  to  $\text{R}^3$  are each, independently of one another,  
 a radical of the formula II



- 20 or  $\text{C}_1$ - to  $\text{C}_8$ -alkyl,  
 $\text{R}^A$  are each, independently of one another, an organic  
 group having from 1 to 30 carbon atoms which is bound  
 via a silicon atom or a carbon atom, with the proviso  
 that at least one of the radicals  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$  and  $\text{R}^A$  is a  
 25 radical of the formula II,

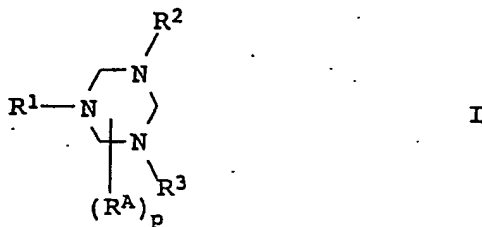
p is from 0 to 6,

m is from 1 to 6,

30

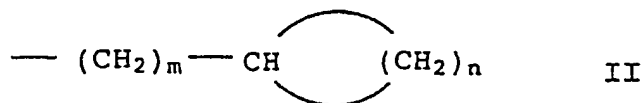
n is from 2 to 6, and

- c) at least one activator.
2. A process as claimed in claim 1, wherein  $R^1$  to  $R^3$  are each, independently of one another, cyclohexyl- $C_1$ - $C_4$ -alkyl.
3. A process as claimed in claim 2, wherein  $R^1$  to  $R^3$  are each cyclohexylmethyl.
4. A process as claimed in claim 1, wherein p is 3 and the radicals  $R^A$  are arranged symmetrically on the triazacyclohexane ring and are, independently of one another, radicals of the formula II.
5. A process as claimed in any of the preceding claims, wherein the activator comprises an alkylaluminum compound.
6. A process as claimed in claim 5, wherein the activator is selected from among  $AlR_3$ ,  $AlR_2Hal$ ,  $AlRHal_2$ ,  $AlR_2OR'$ ,  $AlRHalOR'$  or  $Al_2R_3Hal_3$ , where R and R' are each, independently of one another, methyl, ethyl or a straight-chain or branched  $C_3$ - $C_8$ -alkyl group and Hal is a halogen atom, and alkylaluminoxanes.
7. A process as claimed in any of the preceding claims, wherein the olefin is ethene.
8. A process as claimed in any of claims 1 to 6, wherein the olefin is an  $\alpha$ -olefin having at least 3 carbon atoms.
9. A catalyst system obtainable from
- a) at least one chromium source,
- b) at least one ligand of the formula I



where  $\text{R}^1$  to  $\text{R}^3$  are each, independently of one another,  
a radical of the formula II

5



or  $\text{C}_1$ - to  $\text{C}_8$ -alkyl,

$\text{R}^A$  are each, independently of one another, an organic  
group having from 1 to 30 carbon atoms which is bound a  
silicon atom or a carbon atom, with the proviso that at  
least one of the radicals  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$  and  $\text{R}^A$  is a radical  
of the formula II,

$p$  is from 0 to 6,

$m$  is from 1 to 6,

$n$  is from 2 to 6, and

20

c) at least one activator.